

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<p>Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.</p> <p>Substitute for form 1449/PTO</p> <p><b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b></p> <p><i>(Use as many sheets as necessary)</i></p>				<b>Complete if Known</b>	
				Application Number	10/591,482
				Filing Date	August 2, 2007
				First Named Inventor	Thomas Muller
				Art Unit	1647
				Examiner Name	D. S. Romeo
				Attorney Docket Number	PHPH-P01-015
Sheet	1	of	4		

[illegible]

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	MM-DD-YYYY			
		DE-100 26 713-A1	12-06-2001	Sebald, Walter		X
		EP-0 704 532-A2	04-03-1996	United States Surgical Corp		
		WO-01/92298-A2	12-06-2001	Sebald, Walter et al.		
		WO-2005/085281-A1	09-15-2005	Julius-Maximilians Universität Würzburg		
		WO-92/16228-A1	10-01-1992	Bristol-Myers Squibb Co		
						X

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

<sup>1</sup> EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. \* CITE NO.: Those application(s) which are marked with an single asterisk (\*) next to the Cite No. are not supplied (under 37 CFR 1.98(a)(2)(iii)) because that application was filed after June 30, 2003 or is available in the IFW. <sup>2</sup> Applicant's unique citation designation number (optional). <sup>3</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>4</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>5</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>6</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>7</sup> Applicant is to place a check mark here if English language Translation is attached.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<b>Complete if Known</b>	
				Application Number	10/591,482
				Filing Date	August 2, 2007
				First Named Inventor	Thomas Muller
				Art Unit	1647
				Examiner Name	D. S. Romeo
Sheet	2	of	4	Attorney Docket Number	PHPH-P01-015

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		Andrades, J.A., et al., "A Recombinant Human TFG-β1 Fusion Protein with Collagen-Binding Domain Promotes Migration, Growth, and Differentiation of Bone Marrow Mesenchymal Cells," Experimental Cell Research, 250:485-498 (1999).	
		Balemans, W., et al., "Extracellular Regulation of BMP Signaling in Vertebrates: A Cocktail of Modulators," Developmental Biology, 250:231-250 (2002).	
		Bogan, A.A., et al., "Anatomy of Hot Spots in Protein Interfaces," J. Mol. Biol., 280:1-9 (1998).	
		Boulanger, M.J., et al., "Hexameric Structure and Assembly of the Interleukin-6/IL-6 α-Receptor/gp130 complex," Science, 300:2101-2104 (2003).	
		Brunger, A.T., "Free R value: a novel statistical quantity for assessing the accuracy of crystal structures," Nature, 355:472-475 (1992).	
		Brunger, A.T., et al., "Crystallography & NMR System: A New Software Suite for Macromolecular Structure Determination," Acta Cryst., D54:905-921 (1998).	
		Chakrabarti, P., et al., "Dissecting Protein-Protein Recognition Sites," Proteins, 47:334-343 (2002).	
		Collaborative Computational Project, Number 4, "The CCP4 Suite: Programs for Protein Crystallography," Acta Cryst., D50:760-763 (1994).	
		Database NCBI Sequence Viewer, "Chain A, Structure of the Bone Morphogenetic Protein 2 Mutant L51p," Database Accession No. 1REUA (November 7, 2003).	
		de Vos, A.M., et al., "Human growth hormone and extracellular domain of its receptor: crystal structure of the complex," Science, 255:306-312 (1992).	

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<b>Complete if Known</b>	
				Application Number	10/591,482
				Filing Date	August 2, 2007
				First Named Inventor	Thomas Muller
				Art Unit	1647
				Examiner Name	D. S. Romeo
Sheet	3	of	4	Attorney Docket Number	PHPH-P01-015

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		Evans, P.R., "Data reduction," Proceedings of CCP4 Study Weekend, pp. 114-122 (1993).	
		Greenwald, J., et al., "The BMP7/ActRII Extracellular Domain Complex Provides New Insights into the Cooperative Nature of Receptor Assembly," Mol. Cell., 11:605-617 (2003).	
		Groppe, J., et al., "Structural basis of BMP signalling inhibition by the cystine knot protein Noggin," Nature, 420:636-642 (2002).	
		Hage, T., et al., "Crystal Structure of the Interleukin-4/Receptor $\alpha$ Chain Complex Reveals a Mosaic Binding Interface," Cell, 97:271-281 (1999).	
		Hart, P.J., et al., "Crystal structure of the human T $\beta$ R2 ectodomain-TGF- $\beta$ 3 complex," Nat. Struct. Biol., 9(3):203-208 (2002).	
		Kirsch, T., et al., "Isolation of recombinant BMP receptor IA ectodomain and its 2:1 complex with BMP-2," FEBS Letters, 468:215-219 (2000).	

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<b>Complete if Known</b>	
				Application Number	10/591,482
				Filing Date	August 2, 2007
				First Named Inventor	Thomas Muller
				Art Unit	1647
				Examiner Name	D. S. Romeo
Sheet	4	of	4	Attorney Docket Number	PHPH-P01-015

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		Kirsch, T., et al., "Crystal structure of the BMP-2-BRIA ectodomain complex," Nature Structural Biology, 7(6):492-496 (2000).	
		Kirsch, T., et al., "BMP-2 antagonists emerge from alterations in the low-affinity binding epitope for receptor BMPR-II," EMBO Journal, 19(13):3314-3324 (2000).	
		Leslie, A.G.W., "Recent changes to the MOSFLM package for processing film and image plate data," Joint CCP4+ESF-EAMCB Newsletter on Protein Crystallography, 26 (1992).	
		McDonald, I.K., et al., "Satisfying Hydrogen Bonding Potential in Proteins," J. Mol. Biol., 238:777-793 (1994).	
		Murshudov, G.N., et al., "Refinement of Macromolecular Structures by the Maximum-Likelihood Method," Acta Cryst., D53:240-255 (1997).	
		Nickel, J., et al. "The Crystal Structure of The BMP-2: BMPR-IA Complex and the Generation of BMP-2 Antagonists," Journal of Bone & Joint Surgery, 83-A(S1):S1-7 (2001).	
		Ruppert, R., et al., "Human bone morphogenetic protein 2 contains a heparin-binding site which modifies its biological activity," Eur. J. Biochem., 237:295-302 (1996).	
		Thompson, T.B., et al., "Structures of an ActRIIB:activin A complex reveal a novel binding mode for TGF- $\beta$ ligand:receptor interactions," EMBO J., 22(7):1555-1566 (2003).	
		Tuan, T.L., et al., "Engineering, Expression and Renaturation of Targeted TFG-Beta Fusion Proteins," Connective Tissue Research, 34(1):1-9 (1996).	
		Winn, M.D., et al., "Use of TLS parameters to model anisotropic displacements in macromolecular refinement," Acta Cryst., D57:122-133 (2001).	
		Xu, D., et al., "Hydrogen bonds and salt bridges across protein-protein interfaces," Protein Eng., 10(9):999-1012 (1997).	
		Zhou, X., et al., "Nodal is a Novel TFG- $\beta$ -like gene expressed in the mouse node during gastrulation," Nature, 361:543-547 (1993).	

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.